Dr. Catherine E. Brewer Research Presentation | Biological Engineering

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Abstract:

Biomass resources are available all around us and are frequently underutilized. These resources can come in the form of agricultural residues like pecan shells or cotton gin trash, forest residues, invasive species like tumbleweed and salt cedar, yard waste, organic materials and nutrients in wastewater, and even garbage on spacecraft. There are many opportunities to use these resources to meet our feed, water, and energy needs—with the right engineering. Thermochemical processes, namely pyrolysis, torrefaction, and hydrothermal liquefaction (HTL), provide platforms to convert low-value materials into heat, power, liquid fuels, adsorbents, fertilizers, and soil amendments. In this presentation, Dr. Brewer will describe how a thermochemical biomass systems approach can be used to desalinate brackish groundwater, produce fully synthetic jet fuels, manage invasive species and forest waste, remove contaminants from ground and waste waters, and enable life support on long-term space missions.

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